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AUTHOR Frye-Osier, John; And Others
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ABSTRACT

A survey was conducted of the hearing screening practices of 415 (out of a possible 422) Wisconsin school districts operating prekindergarten through grade 12 schools. The tabulated data for each question on the survey are presented in this report along with a discussion of issues and suggestions for improving the hearing screening programs in Wisconsin schools. Questions concerned: the grade levels and categories of students which receive an annual hearing screening, staff position which coordinates the hearing screening, staff position which performs the hearing screening, supervision of the program by an audiologist, screening equipment used, pass/fail criteria used, follow-up threshold tests provided to those who do not pass the initial screening, tympanometry pass/fail criteria, staff position performing the follow-up testing, audiometric follow-up to children referred for medical/audiological assessment, approximate number of children with exceptional education needs (EEN) screened for hearing loss annually, and percent of EEN children found to be untestable. Major concerns revealed by the survey focus on the large numbers of the preschool population and children with EEN who are not screened for hearing loss, failure of some school districts to follow established guidelines, and failure to monitor children's hearing levels after medical referral and treatment. (JDD)

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1985-86

WISCONSIN SCHOOL DISTRICT HEARING SCREENING SURVEY

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The 1985-86 Wisconsin School District Hearing Screening Survey

John Frye-Osier
Raymond Wahlton
Children's Hearing Specialists

Victor Contrucci
Administrator
Division for Handicapped Children
and Pupil Services

Betty Rowe
Director
Bureau for Children
with Physical Needs

Gerard Simono
Chief
Program and Administration Section

Wisconsin Department of Public Instruction
Herbert J. Grover, State Superintendent

This publication is available from:

Bureau for Children with Physical Needs
Wisconsin Department of Public Instruction
125 South Webster Street
P.O. Box 7841
Madison, WI 53707-7841
(608) 266-3886

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Introduction

The Bureau for Children with Physical Needs (BCPN) is in the Wisconsin Department of Public Instruction's Division for Handicapped Children and Pupil Services. The agency administers the Wisconsin Program for Children with Special Health Care Needs, which is funded through the federal Maternal and Child Health Care Services Block Grant, Title V of the Social Security Act, 42 U.S.C. s. 701 et seq. (as created by PL 97-35, Title XXI, sec. 2192[a]), and serves children—birth to age 21—with chronic illness and disabling conditions.

An important part of this program is the BCPN's support of early identification and early intervention efforts throughout Wisconsin. An example of that support is the BCPN's Wisconsin Hearing Conservation Program (WHCP). This program, operated by BCPN staff audiologists since 1947, has provided leadership, technical assistance, and equipment to local educational agencies (LEAs) conducting hearing screening programs. Currently, more than 100 locally managed hearing screening programs provide service to most Wisconsin school districts. The BCPN audiologists support all hearing screening programs that request their assistance. Support may include the loan of audiometric equipment, models for best practice in hearing screening, inservice training, and funding of audiometric technicians.

The instrumentation for assessing auditory function is evolving, and the effects of ear disease and hearing loss in early life are better understood than in years past. An important goal of the WHCP is to help LEAs provide the best possible hearing screening services. In order to identify ways to improve local screening practices, the BCPN audiologists decided to assess the hearing screening practices of all Wisconsin school districts.

In fall 1985, the BCPN audiologists conducted a survey of the hearing screening practices of all 422 Wisconsin school districts operating prekindergarten through grade 12 schools. The ten Wisconsin union high school districts, which operate grades 9-12 schools only, were not surveyed. The questionnaire was mailed to the school districts in September 1985, and 415 usable surveys were returned by March 1, 1986. The tabulated data for each question on the survey are presented in this report along with a discussion of issues and suggestions for improving the hearing screening programs in Wisconsin schools. A copy of the questionnaire appears on page 22.

Survey Results

Question 1

Does your school provide annual hearing screening for ALL? (Check all those that apply.)

( ) Early Childhood Classes
( ) New Enrollees
( ) Prekindergarten Enrollment Children
( ) Children 0-3 on Request
( ) Teacher Referrals
( ) Children for Classes in: ( ) MR ( ) TMR ( ) LD
( ) ED ( ) Other EEN

Children in grades ( )–K ( )–1 ( )–2 ( )–3 ( )–4 ( )–5
( )–6 ( )–7 ( )–8 ( )–9 ( )–10 ( )–11 ( )–12

The number of school districts that screen children in each of eight categories is shown in Figure 1. All 415 school districts that returned usable surveys reported that some regular classes K-12 were screened. Eighty-five (85) percent of the districts screened all regular classes K-3, and 49 percent screened regular classes beyond grade 3. Two hundred ninety-one (291) districts reported that they screened all children in one or more of the exceptional educational needs (EEN) categories, and 215 districts said they screened children enrolled in early childhood programs.

Three hundred thirty-eight districts (338) reported screening for hearing loss in prekindergarten enrollment groups, which consists of children assembled for general screening activities before they enter kindergarten. Ninety-three (93) percent of the school districts screened children who were referred by teachers, and 50 percent screened new enrollees. Forty (40) percent provided hearing screening for children birth to 3 years of age upon request.

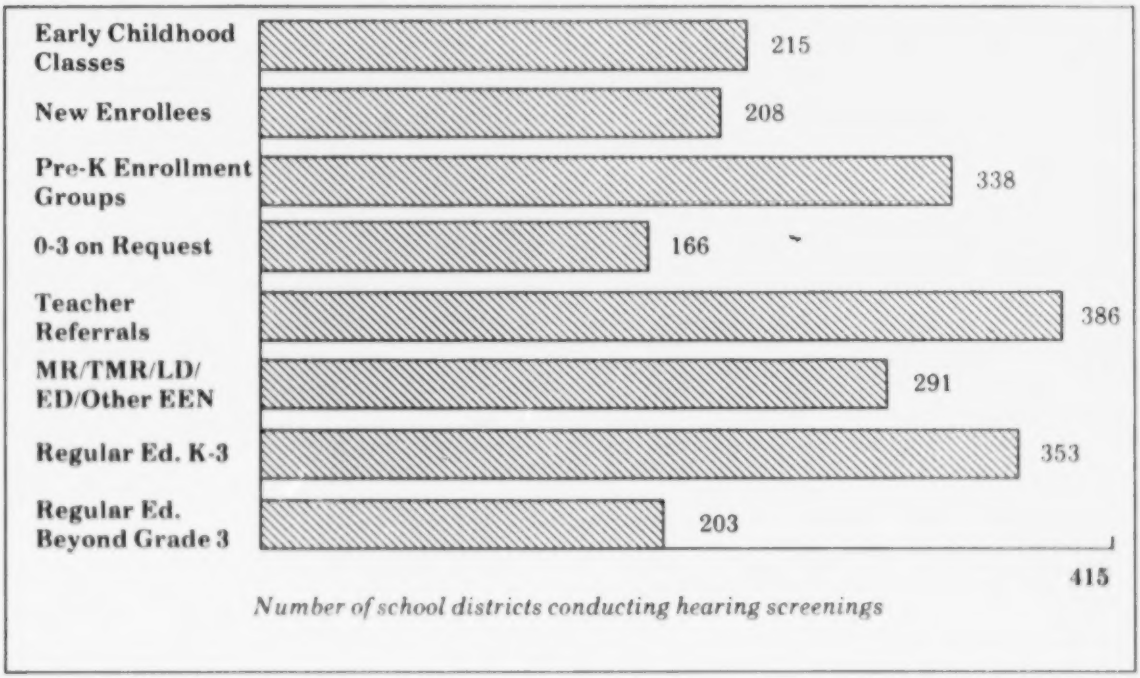
Comment: The data from Question 1 indicate that Wisconsin's local educational agencies (LEAs) universally accept the importance of screening for hearing loss. Most districts reported that they screened the younger children (K-3) in their schools. This is encouraging because the incidence and consequences of auditory pathology and hearing loss are greatest in early childhood.

Children with EEN also have a high incidence of hearing loss/auditory pathology. While the answers to Question 1 show that many districts attempted to screen EEN children, the responses to Questions 12 and 13 reveal what percentage of this population was screened and how many EEN children were considered untestable. That data is presented later in this report.

Good practice dictates that hearing screening efforts need to focus on all groups at highest risk for hearing loss and its consequences, which include the prekindergarten enrollment group. Prekindergarten enrollment screenings provide a good chance for schools to screen these children for hearing loss/auditory pathology, but approximately 19 percent of reporting districts did not take advantage of this opportunity.

Figure 1/Question 1

Number of School Districts Screening Children in Each of Eight Categories



Question 2

Who coordinates the annual hearing screening for your school district?

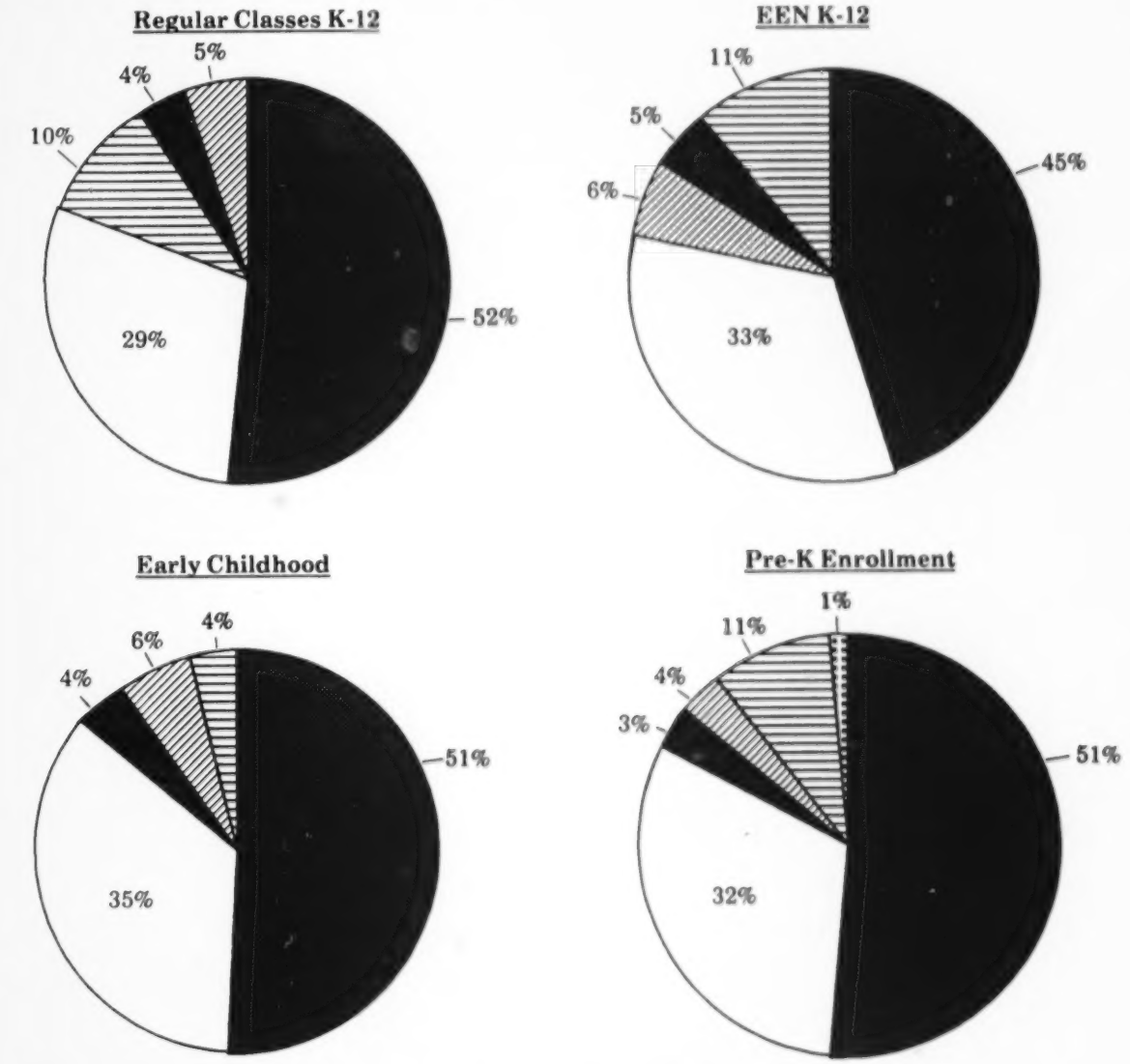
( ) *County Nurse*
( ) *City Nurse*
( ) *School Nurse*
( ) *School Speech and Language Clinician*
( ) *Other*

Figure 2 shows that in the 1985-86 school year more than three-fourths of hearing screening programs in Wisconsin for all categories of children were organized by county public health nurses and school nurses. School district speech and language clinicians organized the screening efforts in approximately 5 percent of the districts. City health nurses and "others" organized the remainder of the programs.

Comment: Traditionally, hearing screening programs have been organized and administered by county public health agencies. That structure greatly aided the Bureau for Children with Physical Needs (BCPN) audiologists in their efforts to communicate with most programs. However, the current trend is for LEAs to organize and conduct individual programs, so the data in Figure 2 are changing. BCPN audiologists estimate that more than 100 separate hearing screening programs currently exist in Wisconsin. This trend makes it increasingly difficult for BCPN audiologists to maintain contact with and provide service to all programs.

Figure 2/Question 2

Coordinators of Screening Programs for Four Categories of Children



Question 3

Who performs the hearing screening (nurse, aide, volunteer, audiometric technician, other) for:

Prekindergarten Enrollment Children
EEN Children
Early Childhood Classes
Regular Classes

As shown in Figure 3, volunteers screened the regular education classes K-12 in one-half of the reporting school districts. Volunteers also screened children with EEN K-12, early childhood classes, and prekindergarten enrollment groups in about one-quarter of these districts. However, nurses did most of the screening (an average of 41 percent of the school districts) in these categories; they were also the next most frequent screeners of regular education K-12 students (29 percent). Collectively, school health aides, audiometric technicians, and LEA speech and language clinicians conducted hearing screening for all four categories of children in just over one-quarter of the responding school districts.

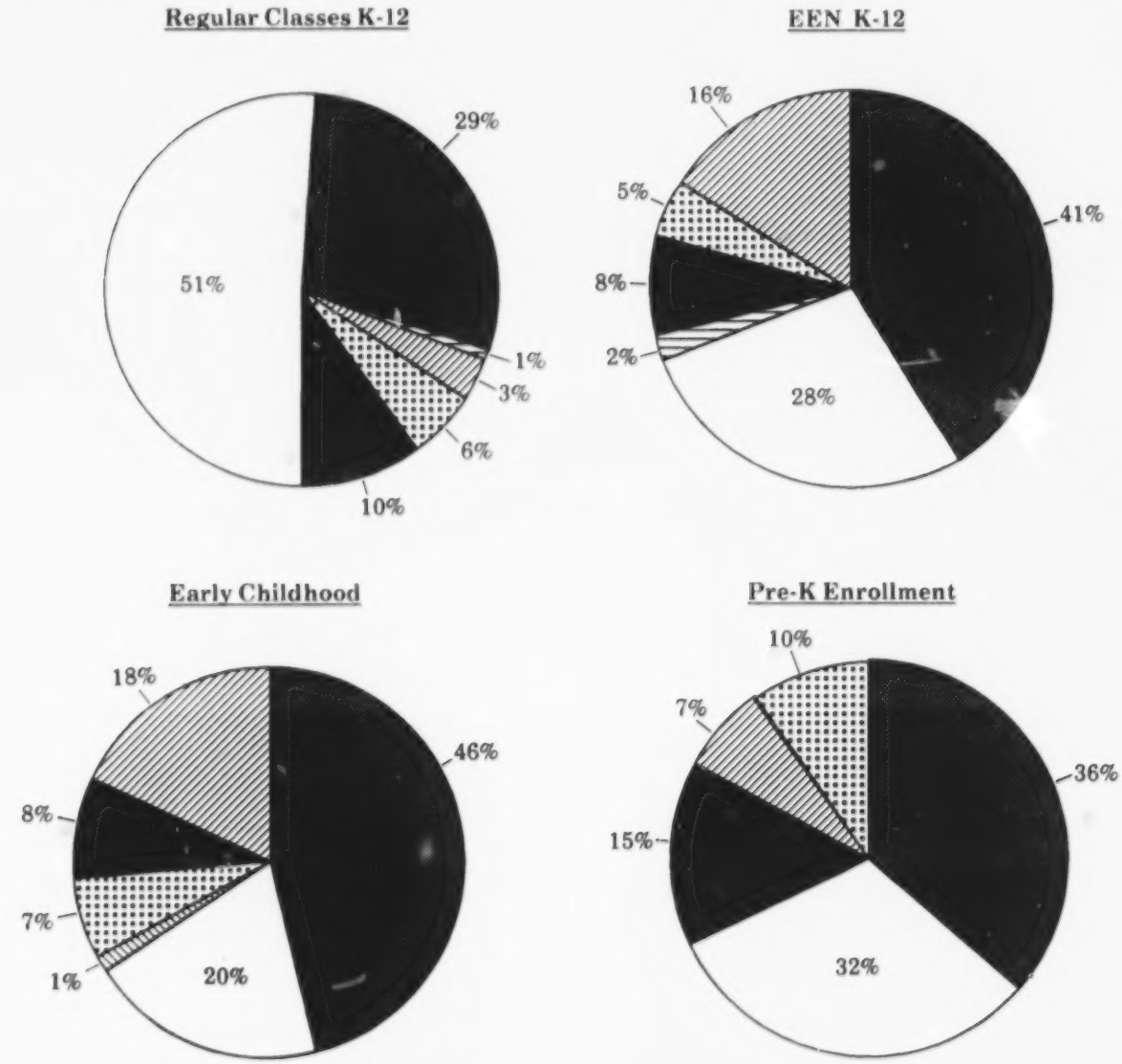
Comment: Most hearing screening volunteers and school health aides are trained by someone other than an audiologist and are unsupervised during the screening process. Their training usually consists of only one hour or less of instruction, and they may not have had any experience screening for hearing loss in children. The total annual experience for most volunteers and school health aides is usually only part of one day, and many volunteers do not screen again in succeeding years.

With proper training, experience, and supervision, it is entirely appropriate for volunteers and school health aides to screen hearing in the regular K-12 population. However, many children with EEN, preschool children, and early childhood program children are difficult to screen. These groups are at high risk for educationally significant hearing loss and should be screened only by individuals who have received adequate training and supervision and have demonstrated competence in screening for hearing loss in these populations. At present, many hearing screening volunteers in Wisconsin do not meet these criteria.

Many LEA speech and language clinicians and audiometric technicians have the training and experience to screen for hearing loss in these high-risk groups but rarely receive the supervision of an audiologist. Many nurses who screen for hearing loss also have received considerable training and have a greater depth of experience than volunteers and school health aides. Unfortunately, it is impossible for the BCPN audiologists to provide adequate training and supervision for all screeners of these high-risk children.

Figure 3/Question 3

Hearing Screening Personnel for Four Categories of Children



Question 4

Is the program regularly supervised by an audiologist?

( )Yes ( )No

Comment: The responses to Question 4 were not tabulated because the word "regularly" elicited ambiguous answers. For example, most of the "yes" responses came from school districts that have brief annual contact with the BCPN audiologists. Since these districts' hearing screening programs had no other audiological input, the respondents must have assumed that this brief contact fulfilled the criteria for "regular" supervision; it does not.

The BCPN's annual contribution to individual programs is limited to providing equipment, a general discussion of guidelines and criteria, occasional volunteer training, and limited training of BCPN-trained hearing technicians when they are involved in a program. The BCPN audiologists are able to annually provide these activities, which last an average of two to three hours, to programs upon request. However, this is not "regular" supervision and is not adequate to ensure a quality hearing screening program.

Question 5

What screening equipment is used to screen each group below: (pure tone audiometer, tympanometer, VASC, parent questionnaire, other)

Prekindergarten Enrollment Children
EEN Children
Early Childhood Classes
Regular Classes

Results from Question 5 (in Figure 4) show that an average of 88 percent of the school districts used pure tone audiometers in their hearing screening programs.

Comment: The American Speech-Language-Hearing Association (ASHA) recommends pure tone audiometry hearing screening for all children age 3 and older. For preschool and difficult-to-test children, it is a task that requires considerable training, skill, and experience.

Significantly fewer districts (10 percent) employed tympanometry in their screening programs. Its most frequent use occurred in screening programs for early childhood children (14 percent) and prekindergarten enrollment groups (11 percent). Six and one-half (6.5) percent of the school districts used tympanometry to screen regular classes K-12.

Comment: Tympanometry is a valuable tool for identifying middle ear disorders in high-risk and difficult-to-test children and is a more sensitive index of middle ear abnormality than pure tone testing. While considerable controversy exists about the use of this tool in mass hearing screening programs, there is an emerging consensus that it should be employed only for screening preschool and other high-risk, difficult-to-test populations. The BCPN encourages the use of tympanometry as a screening tool in conjunction with pure tone audiometry for preschool and EEN children as long as the ASHA and BCPN guidelines and criteria are followed and proper training occurs. Tympanometry's use as a screening tool in regular K-12 classes is discouraged.

An average of 7 percent of the school districts used parental questionnaires in their hearing screening programs.

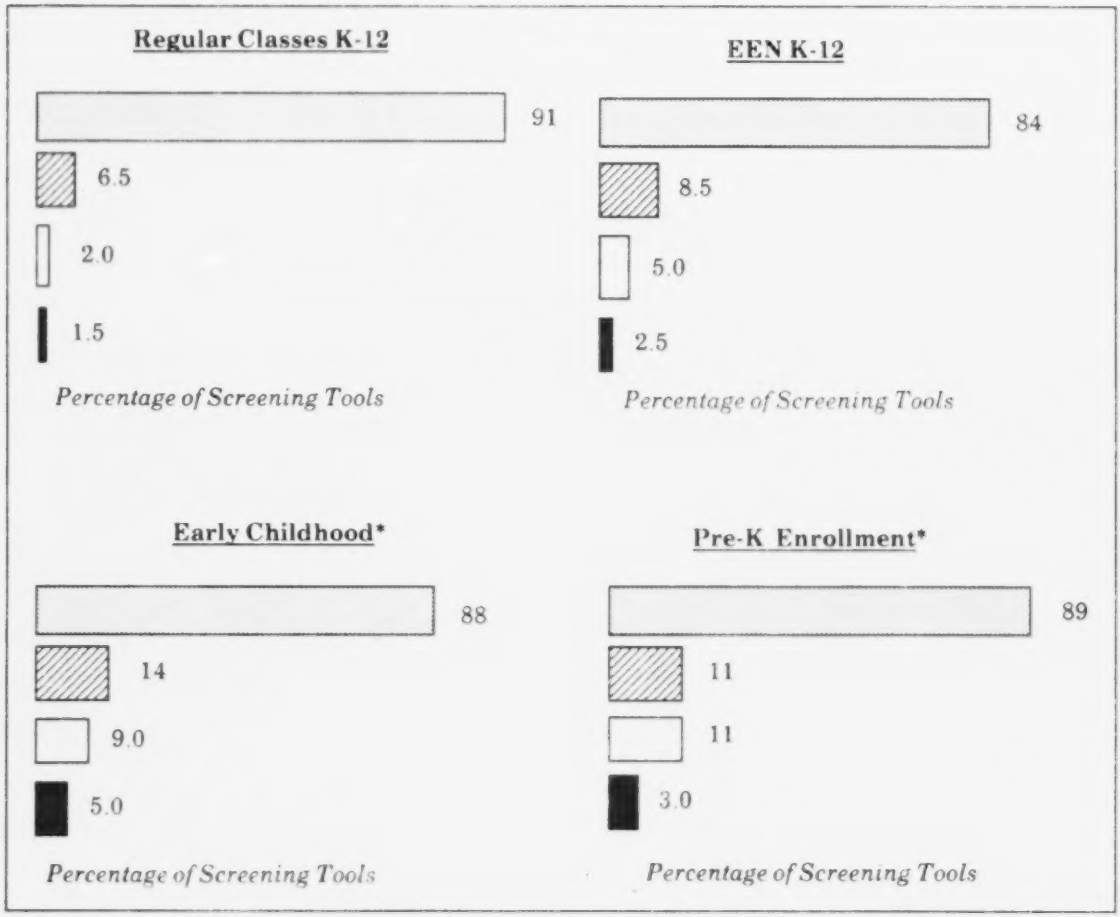
Verbal auditory screening (VASC) audiometers were used in an average of 3 percent of the school districts.

Comment: VASC audiometer screening fails to identify educationally significant mid- and high-frequency hearing loss and is discouraged by both the ASHA and BCPN.

Some school districts employed more than one method of hearing screening for the early childhood and prekindergarten groups.

Figure 4/Question 5

Screening Tools Used with Four Categories of Children



Key

- Pure Tone Audiometers
- Tympanometer
- Questionnaire
- VASC

*The percentages in these categories total more than 100 percent because more than one method of hearing screening is used.

Question 6

What hearing screening pass/fail criteria do you use?

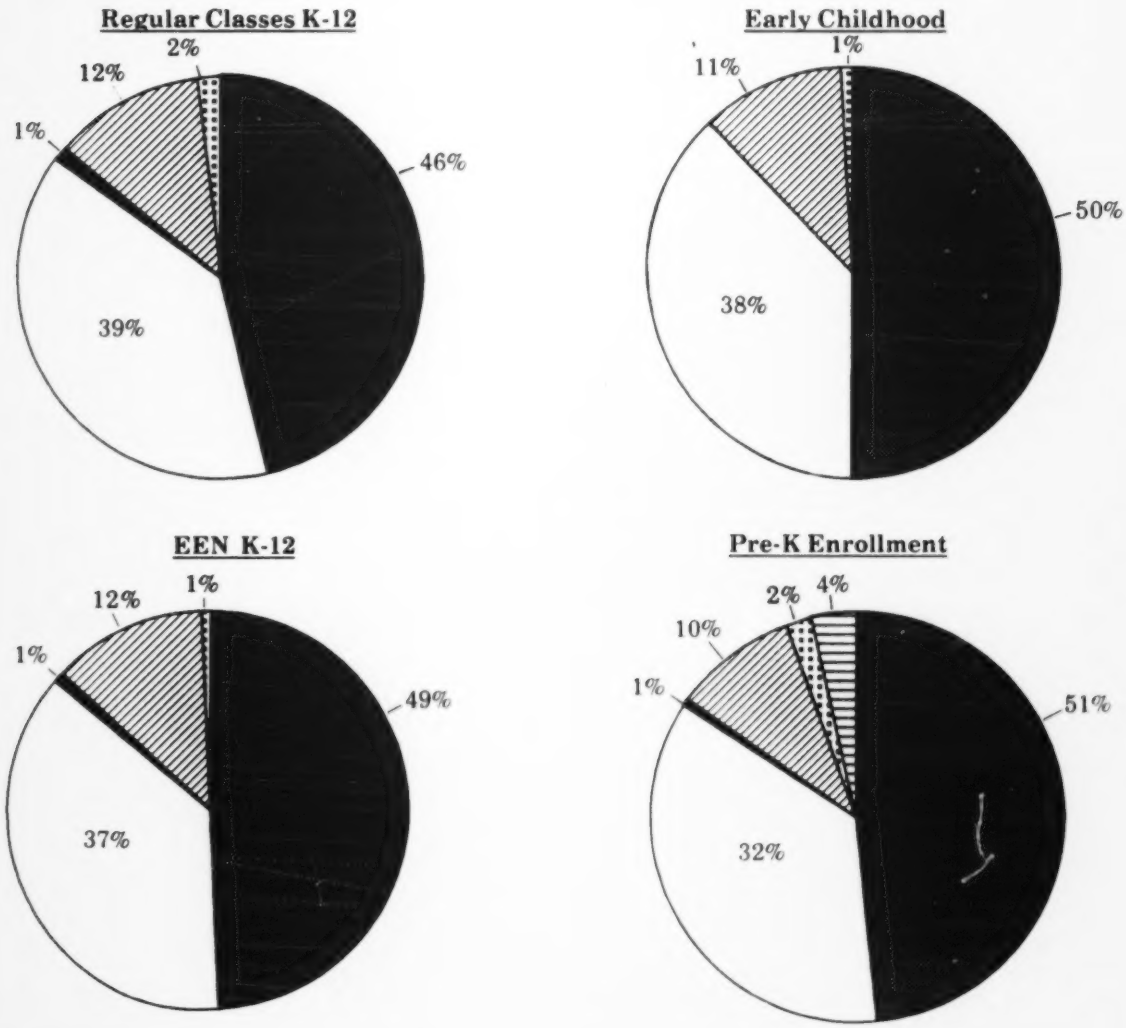
Frequencies
Intensity Level

As shown in Figure 5, only about 50 percent of the school districts that used pure tone audiometry followed the ASHA and BCPN pass/fail criteria. For instance, 10 to 12 percent of all districts screened at intensity levels louder than ASHA and BCPN guidelines. In addition, more than one-third of the school districts reported that they screened with more frequencies (test tones) than the ASHA and BCPN recommends. Only 1 percent reportedly used fewer frequencies than recommended.

Comment: The ASHA and BCPN pass/fail criteria are important to ensure valid screening efforts. Increasing the loudness level of the test tones will create an unacceptable number of false negatives, and testing with more than the recommended frequencies or screening at quieter than recommended levels can inflate the number of false positives.

Figure 5/Question 6

Pure Tone Pass/Fail Criteria Used for Screening Four Categories of Children



Key

- Followed ASHA and BCPN Guidelines
- More Frequencies than ASHA and BCPN Guidelines
- Fewer Frequencies than ASHA and BCPN Guidelines
- Intensity Levels Louder than ASHA and BCPN Guidelines
- Intensity Levels Quieter than ASHA and BCPN Guidelines
- No Report

Question 7

Are follow-up threshold tests provided to those who do not pass the initial screening?

Prekindergarten Enrollment Children ( )Yes ( )No
EEN Children ( )Yes ( )No
Early Childhood Classes ( )Yes ( )No
Regular Classes ( )Yes ( ) No

The BCPN model for best practice in hearing screening changed after this survey was developed; threshold testing is no longer recommended at the follow-up test. The current model promotes a second hearing screening test four weeks after the initial screening test. This test is done by people who have more experience and training than the volunteers who do most of the initial screening. This change is the last in a three-year series of changes reflecting a movement away from the previous BCPN model, which included evaluation components, to a model for hearing screening only. Therefore, the responses collected for Question 7 are useful only to the extent that they represent how many programs provided both an initial screening and a retest at a later time.

The follow-up test is a very important element in hearing screening because most screening failures are due to middle ear disorders which usually clear up in four to six weeks. Follow-up testing at this four-week interval allows time for the disorder to resolve and reduces the number of unnecessary medical referrals. Unfortunately, the programs that screened 27 percent of the K-12 children with EEN, 19 percent of early childhood, 7 percent of regular K-12, and 6 percent of prekindergarten enrollment children did not conduct a retest and, presumably, referred these children based upon a single hearing test.

Question 8

What are the tympanometry pass/fail criteria?

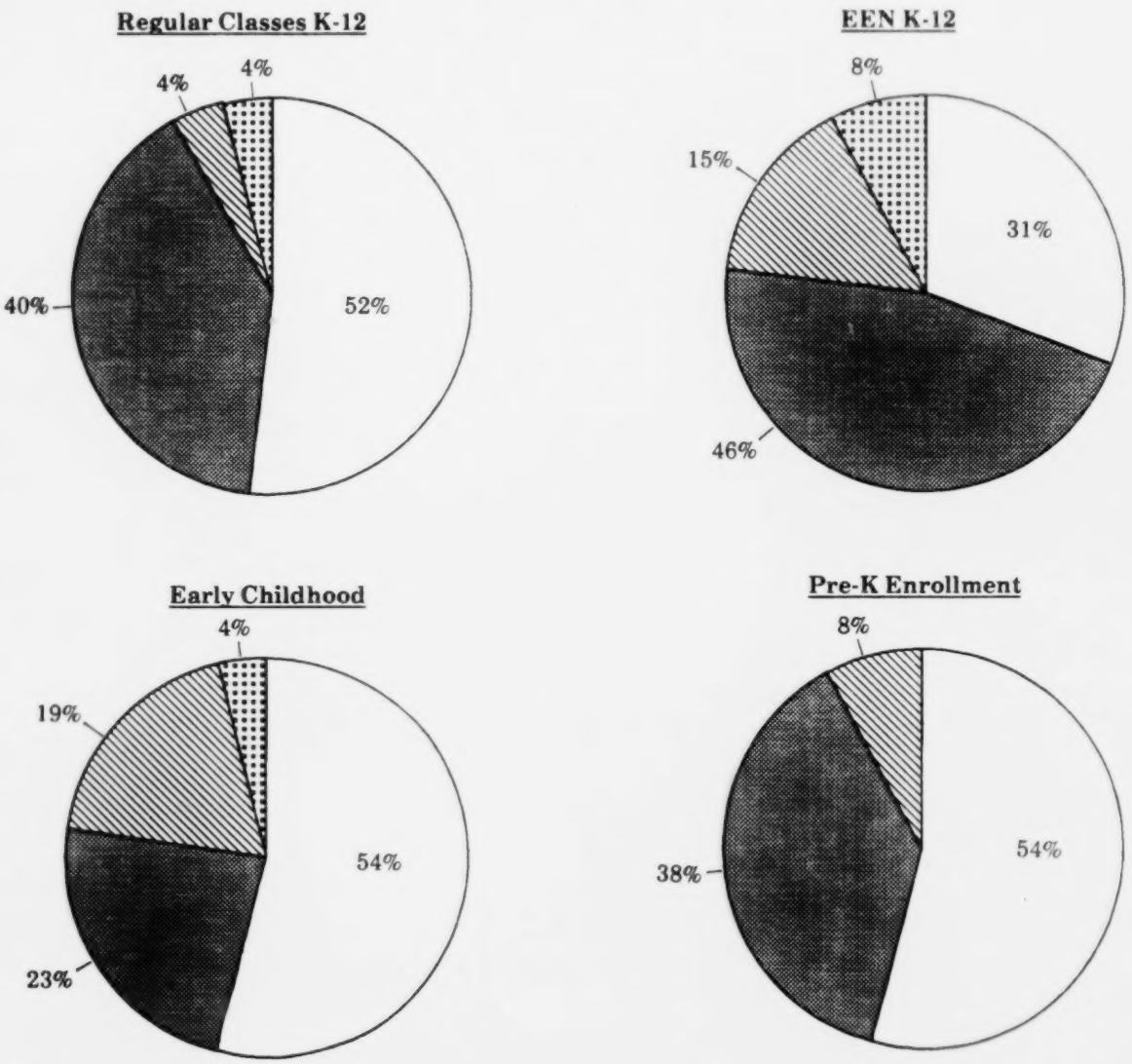
Volume
Compliance
Middle ear pressure more negative than
Middle ear pressure more positive than
Reflex ( )Yes ( )No Tympanogram Shape

Figure 6 shows that just over one-half of the school districts that used tympanometry followed the BCPN pass/fail guidelines and criteria for all but one of the four categories of children. For K-12 students with EEN, 31 percent of the districts followed the BCPN guidelines and criteria. An average of 37 percent of the school districts used pass/fail criteria more strict than recommended. Eight (8) percent of the EEN K-12 population screened with tympanometry were screened with laxer criteria than the BCPN's.

Comment: The BCPN tympanometric guidelines and pass/fail and referral criteria were developed to minimize false positive results while ensuring the sensitivity of the test. Pass/fail criteria that are too strict will result in high false positive rates and over-referral to physicians. Criteria that are too lax can result in not referring children who can benefit from medical care. Historically, over-referral has been a problem in programs that screen with tympanometry. This can undermine the credibility of the screening with parents, educators, and physicians.

Figure 6/Question 8

Tympanometry Pass/Fail Criteria Used for Screening Four Categories of Children



Key

- Criteria More Strict Than BCPN's
- Used BCPN Criteria
- Criteria More Lax Than BCPN's
- No Report

Question 9

Is tympanometry employed at the time of the threshold test?

Prekindergarten Enrollment Children ( )Yes ( )No
EEN Children ( )Yes ( )No
Early Childhood Classes ( )Yes ( )No
Regular Classes ( )Yes ( )No

The answers to Question 9 show that all districts that employed tympanometry for the first hearing screening (see Question 5) also used it for the follow-up test. This is a desirable finding because tympanometric screening should never be done with only one test.

Question 10

Who performs the follow-up threshold testing and/or tympanometry?

( ) Nurse
( ) Aide
( ) Audiometric Technician
( ) Speech Clinician
( ) Other

As discussed in Question 7, threshold testing is no longer part of the BCPN model for hearing screening. However, personnel currently responsible for doing the second hearing screening are, in most cases, the same personnel who did the threshold testing in the year the survey was conducted. Figure 7 represents the distribution of personnel who performed the follow-up testing of children in the four categories.

For all categories of children, audiometric technicians performed most of the follow-up testing; nurses were next, followed by speech and language clinicians, "others," and health aides.

Comment: In most programs that use audiometric technicians, the technicians are employed and trained by the BCPN audiologists. The technicians perform only follow-up testing for prekindergarten, kindergarten, first grade, and EEN children; and their length of annual employment is usually not more than four weeks. These technicians receive approximately two hours of formal classroom training during their first year of service and some on-the-job training and supervision (usually one-half day or less) during their first year.

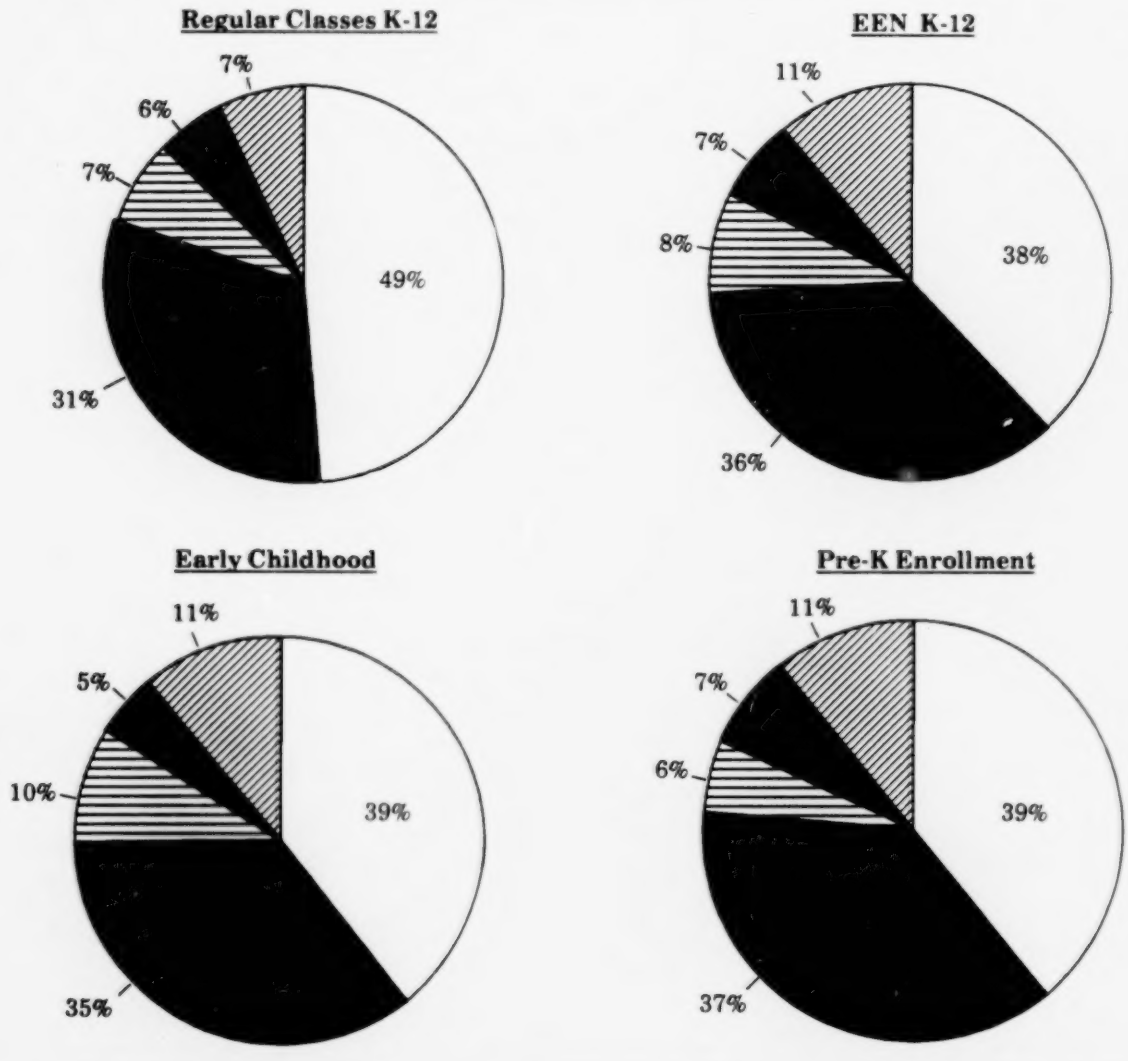
Because these technicians retest young children and children with EEN—populations which are the most difficult to screen—they would benefit from additional training and supervision. However, current resources do not provide for this additional support.

While the skills of the follow-up testers are important for valid medical referrals, the validity of the whole screening effort depends on the quality of the first screening, which is usually done by people with less training and supervision than the follow-up testers.

Collectively, nurses, LEA speech and language clinicians, health aides, and "others" retest the majority of children who fail the first test. The BCPN audiologists provide some training to these groups when requested, but they do not provide supervision. Therefore, the BCPN has no knowledge or control of the validity of retesting done by nurses, LEA speech and language clinicians, health aides, and "others."

Figure 7/Question 10

Person Performing Follow-up Testing and/or Tympanometry for Four Categories of Children



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Question 11

Does your district's hearing screening program provide audiometric follow-up to those children whom you refer for medical/audiological assessment? ( ) Yes ( ) No

Depending on the category of the children, 27 to 30 percent of the school districts reported that they did not provide an audiometric follow-up of children referred for medical treatment.

Comment: Without proper audiometric monitoring of hearing levels after medical treatment, persistent educationally significant hearing loss can go undetected. According to field experience, even if a child is referred for medical evaluation after failing a hearing screening test, many physicians do not include hearing testing as part of a referred child's evaluation and treatment. It is critical, therefore, that screening programs incorporate monitoring activities which will ensure either restoration of normal hearing or proper educational management for children whose hearing losses persist.

Question 12

What is the approximate number of EEN children screened for hearing loss annually in your district?

Of the 291 school districts that reported screening some EEN K-12 classes, 269 estimated the number of EEN children that they screened. Those estimates totaled 30,000 children.

Comment: Children in early childhood programs and other children with EEN are at high risk of hearing loss. The incidence of educationally significant hearing loss in this group is three to seven times higher than the "normal" population. These children, therefore, should be a priority in a school's hearing screening program.

Every child in these categories should be regularly screened by well-trained, supervised personnel according to carefully established criteria and guidelines. The survey results clearly document that this is not the case in Wisconsin. Further, it is apparent that screening is not even attempted on many EEN children. Assuming that all 8,500 early childhood program children with EEN received some hearing screening, approximately 38,500 EEN children were screened in 1985-86. The EEN enrollment for that same period was 76,500, which means that 38,000 children with EEN were not screened for hearing loss in the 1985-86 school year.

Question 13

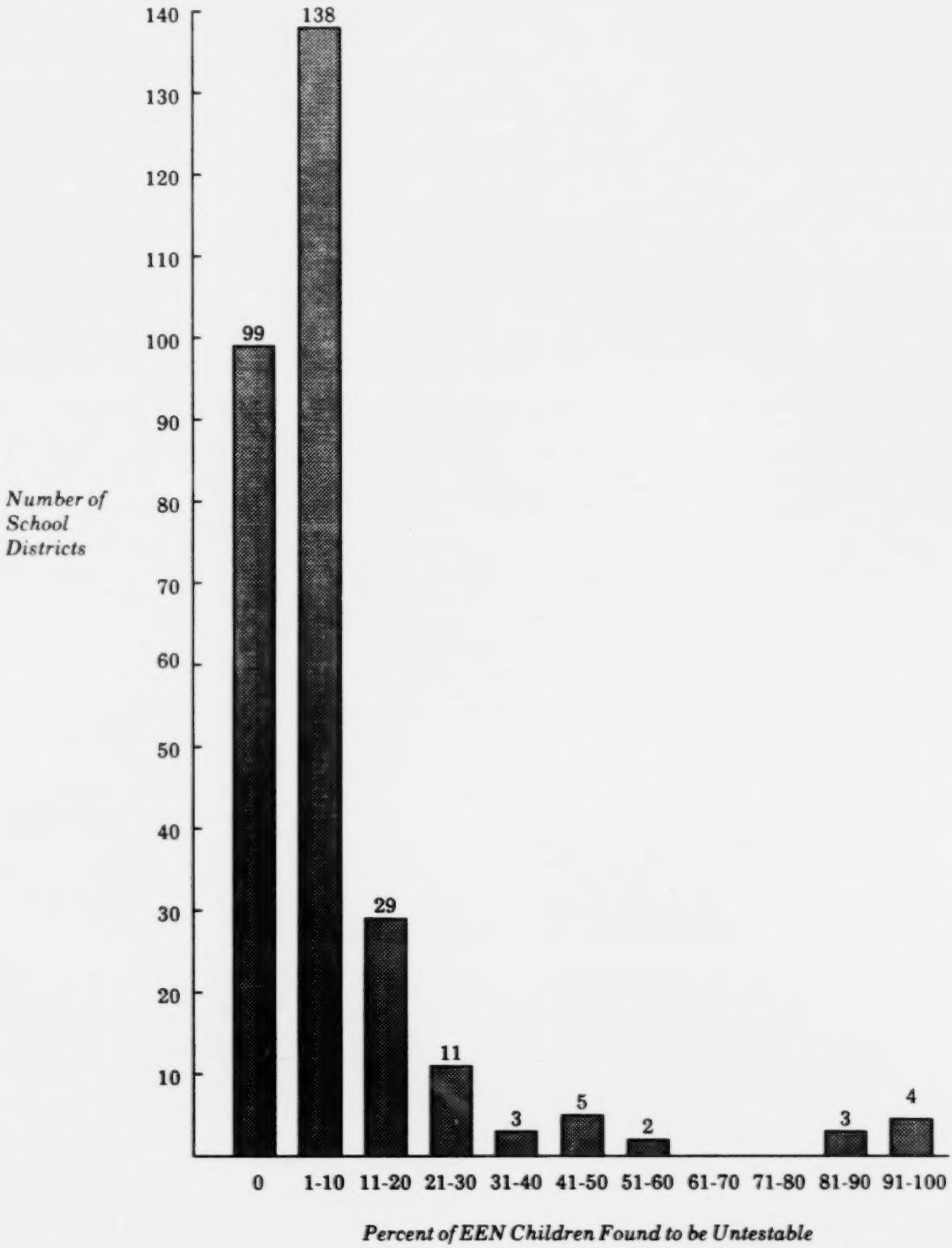
What percent of EEN children are found to be untestable by hearing screening personnel?

Of the 294 school districts that responded to this question, 28 said that more than 20 percent of their EEN children were untestable. Nine districts reported that more than one-half of their EEN children were untestable. On the other hand, one-third of the districts reported that they were able to screen 100 percent of their children with EEN. On average, the districts found 8.3 percent of their EEN children to be untestable.

Comment: If the estimate that 38,000 EEN children were not screened for hearing loss in the 1985-86 school year is correct (Question 12) and approximately 8.3 percent of the remaining 38,500 children could not be screened successfully, then 41,200 Wisconsin school children at high risk of educationally significant hearing loss were not screened.

Figure 8/Question 13

Estimates from 294 Districts of the Percent of EEN Children Found to be Untestable



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Summary

The purpose of this survey was to identify unmet needs in local hearing screening programs. While it is encouraging that all 415 districts that returned usable surveys reported screening some children for hearing loss, the survey data discloses several areas where improvements should be made.

The discussion below highlights the major concerns revealed by the survey and includes some possible solutions.

Concern #1: Large numbers of the preschool population and children with exceptional educational needs (EEN) are not screened for hearing loss, and a significant number of those that are tested cannot be screened successfully by current screening personnel. The incidence of auditory system disorders in children is highest in preschool and EEN populations. The consequences of not detecting these problems are the most severe for these children. So, even though the preschool and EEN children should receive the highest priority in local hearing screening efforts, they are the least well served by most screening programs.

This is largely due to the fact that these children are difficult to screen. Reliable hearing screening in this population requires well-trained, supervised, and experienced personnel who are competent in testing difficult-to-screen children. Yet, more than one-third of these children are screened by volunteers, health aides, and "others," who, for the most part, have little training, supervision, or experience.

A solution to this problem is to provide enough local professional audiological input to ensure that the hearing screening personnel have adequate skills. It is less clear, however, whether responsibility for providing this input belongs to the local educational agencies (LEAs) or to state, local, or private health-care systems. The Bureau for Children with Physical Needs (BCPN) will continue to seek a solution to this problem, and its audiologists will continue to provide technical and material support to local hearing screening programs.

Concern #2: One-half of the school districts that screened with pure tone audiometers did not follow the American Speech-Language-Hearing Association (ASHA) and BCPN guidelines and criteria. These guidelines and criteria are important to valid hearing screening and should be followed uniformly throughout the state. This information is available from the BCPN audiologists, and they are eager to work with local programs to improve hearing screening efforts.

Concern #3: Only one-half of the school districts screening with tympanometry followed the BCPN tympanometry guidelines and criteria. While controversy exists about the use of this tool in mass hearing screening programs, there is an emerging consensus that tympanometry should be used for screening preschool and other high-risk and difficult-to-screen populations, such as children with EEN. Accordingly, the BCPN tympanometry guidelines discourage using this tool for screening "normal" school age children. In spite of this, 27 school districts screen "normal" school-age children with tympanometry.

The tympanometry pass/fail and referral criteria developed by the BCPN audiologists were designed to limit false positive screening results while still insuring the validity of the test. Tympanometry is a valuable tool for identifying middle ear disorders in high-risk and difficult-to-screen children, but its credibility depends on valid pass/fail and referral criteria. Information and inservice training is available from the BCPN audiologists to all local hearing screening programs currently using tympanometry or wishing to incorporate it into their programs.

Concern #4: Since many children's hearing levels are not monitored after medical referral and treatment, persistent educationally significant hearing loss can go undetected and unmanaged. Medically treatable hearing loss should be monitored to ensure restoration and

maintenance of normal hearing and/or proper educational management. Educational records of children with medically irreversible hearing losses should contain current (within six months) audiological data that includes recommendations for managing the child's acoustic environment. All children with identified hearing loss, whether permanent or fluctuating, should be monitored to ensure optimal learning and otologic health.

Achieving the goal of optimal auditory monitoring of children referred for medical evaluation and treatment of hearing loss will require at least three components.

- A commitment by LEAs to adopt a reliable record system which will ensure current and accurate medical and audiological information on EEN or non-EEN children with identified hearing loss, whether permanent or fluctuating.
- Improved communication among the LEAs, local health care providers, and audiologists.
- The development of a uniform statewide system and/or a set of expectations regarding audiometric monitoring that will be adopted and used by the majority of sectors involved with children with hearing loss.

Speech and language development, cognitive development, and educational achievement can be adversely affected even by mild fluctuating hearing loss. Responsible parties must insure that all childhood hearing loss is detected and properly managed. Clearly, there is room for improvement in the hearing screening of all categories of Wisconsin children, particularly in the EEN and preschool populations.

Improvements will require a new commitment of effort and resources from all parties concerned with the hearing health of our children. The BCPN audiologists will continue to be available to all Wisconsin school districts for inservice training, consultation, and limited material support; inquiries are encouraged. The hearing needs of Wisconsin's children can be met with collaboration among LEAs, the State of Wisconsin, and public and private health care providers.

The map on the next page shows which BCPN audiologist serves your area. Their telephone numbers are on the map, or you may write to John Frye-Osier or Raymond Wahlton at the Bureau for Children with Physical Needs, Wisconsin Department of Public Instruction, P.O. Box 7841, Madison, WI 53707-7841.

BCPN Audiologist Districts in Wisconsin

Raymond E. Wahlton (608) 266-3890
John Frye-Osier (608) 267-9188

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Wisconsin Department of Public Instruction
HEARING SCREENING SURVEY
PI-Q85-13 Completion of this survey is voluntary.
There are no penalties for non-submittal.

INSTRUCTIONS: Please return this form (Not a copy of) by November 15, 1985 to:
WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION FOR HANDICAPPED CHILDREN, BCPN
125 SOUTH WEBSTER STREET
P.O. BOX 7841
MADISON WI 53707

Person Reporting	Date

1. Does your school provide annual hearing screening for ALL? *(Check all those that apply)*
   - ☐ Early Childhood Classes
   - ☐ Prekindergarten Enrollment Children
   - ☐ Teacher Referrals
   - ☐ New Enrollees
   - ☐ Children 0-3 on request
   - ☐ Children for Classes in; ☐ MR ☐ TMR ☐ LD ☐ ED ☐ Other EEN

   Children in grades ☐-K ☐-1 ☐-2 ☐-3 ☐-4 ☐-5 ☐-6 ☐-7 ☐-8 ☐-9 ☐-10 ☐-11 ☐-12

2. Who coordinates the annual hearing screening for your school district?
   - ☐ County Nurse
   - ☐ City Nurse
   - ☐ School Nurse
   - ☐ School Speech and Language Clinician
   - ☐ Other *please describe* _____

3. Who performs the hearing screening (nurse, aide, volunteer, audiometric technician, other) for:

   Prekindergarten Enrollment Children _____ EEN Children _____

   Early Childhood Classes _____ Regular Classes _____

4. Is the program regularly supervised by an audiologist? ☐ Yes ☐ No

5. What screening equipment is used to screen each group below; (pure tone audiometer, tympanometer, VASC, parent questionnaire, other)

   Prekindergarten Enrollment Children _____ EEN Children _____

   Early Childhood Classes _____ Regular Classes _____

6. What hearing screening pass/fail criteria do you use?

   Frequencies _____ _____ _____ _____ _____ _____

   Intensity Level _____ _____ _____ _____ _____ _____

7. Are follow-up threshold tests provided to those who do not pass the initial screening?
   Prekindergarten Enrollment Children ☐ Yes ☐ No EEN Children ☐ Yes ☐ No
   No Early Childhood Classes ☐ Yes ☐ No Regular Classes ☐ Yes ☐ No

8. What are the tympanometry pass/fail criteria? Volume _____ Compliance _____

   Middle ear pressure more negative than _____ Middle ear pressure more positive than _____

   Reflex ☐ Yes ☐ No _____ Tympanogram Shape _____

9. Is tympanometry employed at the time of the threshold test?
   Prekindergarten Enrollment Children ☐ Yes ☐ No EEN Children ☐ Yes ☐ No
   Early Childhood Classes ☐ Yes ☐ No Regular Classes ☐ Yes ☐ No

10. Who performs the follow-up threshold testing and/or tympanometry?
    ☐ Nurse ☐ Aide ☐ Audiometric Technician ☐ Speech Clinician ☐ Other

11. Does your district's hearing screening program provide audiometric follow-up to those children who you refer for medial/audiological assessment? ☐ Yes ☐ No

12. What is the approximate number of EEN children screened for hearing loss annually in your district? _____

13. What percent of EEN children are found to be untestable by hearing screening personnel? _____%.